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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,325	11/12/2001	William C. Hurley	C0012	9482

21495 7590 11/21/2003

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EXAMINER

ARTMAN, THOMAS R

ART UNIT PAPER NUMBER

2882

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,325

Applicant(s)

HURLEY ET AL.

Examiner

Thomas R Artman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9, 23-28 and 31 is/are allowed.
- 6) ☒ Claim(s) 10-22, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

Applicant's arguments, filed October 22nd, 2003, with respect to the rejection(s) of claim(s) 10 and 16 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. Therefore, also, the finality of that action is withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ferguson (US 5,422,973).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 12, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carter (US 5,165,003) and in view of Ferguson (US 5,422,973).

Regarding claim 10, Carter discloses the structure (Fig.2), including:

1) at least one bundle (item 14) comprising a plurality of non-tight buffered optical fibers and at least one binder thread (item 18) encircling the plurality of optical fibers to thereby maintain the plurality of optical fibers in the bundle,

2) a separation layer adjacent to and generally surrounding at least one bundle (item 20),
and

3) a cable jacket (item 23) contacting at least a portion of the separation layer, where the separation layer inhibits adhesion between the bundle of fibers and the cable jacket.

However, Carter discloses that there is a grease-like compound (item 22) for repelling water.

In the Background, col.1, Ferguson teaches the advantages of “dry” optical fiber cables that do not have such grease or grease-like substances for water repellants. The dry construction allows easier access to the fibers and is more environmentally acceptable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to not use the grease-like compound in Carter’s optical fiber cable as taught by Ferguson such that one can gain easier access to the fibers in the cable and such that the cable is more environmentally acceptable.

Regarding claims 12 and 13, Carter discloses, from col.5, line 49, to col.6, line 37, that the binder element consists of a needle thread and looper thread that are woven into interlocking stitches.

Regarding claim 15, Carter does not specifically use the term “breakout cable.” However, it is clear from the disclosure, for example in col.5, lines 15-21, that various aspects of the design allow a technician to break out the cable in order to access the individual fibers. It is

also clear from Ferguson, in the Background, that the advantage of using “dry” optical fiber cable construction allows easier access to the individual fibers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that Carter’s cable is part of a “break out” cable. The improvements in Carter’s design of the cable and the motivation to use the “dry” cable construction taught by Ferguson are in part directed specifically to improve the behavior of the cable for such uses.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter and Ferguson and in view of Lochkovic (US 5,561,730).

Though Carter and Ferguson do not teach the use of silicone based coatings, Lochkovic discloses the use of silicone layers as a friction reduction technique in fiber optic cables. This minimizes the damage of the fibers due to wear from excessive relative motion that occurs during installation and over a lifetime of service.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the binding threads with a silicone finish such that the longevity of the fibers would be improved by adding such a friction reducing coating to the binder threads. In this way, wear between the fibers in the bundles and the surrounding loose buffer tube is mitigated.

Claims 16-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carter and Ferguson and in view of Blew (US 5,345,526).

Regarding claim 16, Carter discloses the structure (Fig.2), including:

1) at least one bundle (item 14) comprising a plurality of non-tight buffered optical fibers and at least one binder thread (item 18) encircling the plurality of optical fibers to thereby maintain the plurality of optical fibers in the bundle,

2) a separation layer adjacent to and generally surrounding at least one bundle (item 20),
and

3) a cable jacket (item 23) surrounding at least one bundle, where the separation layer inhibits adhesion between the bundle of fibers and the cable jacket.

Ferguson teaches the advantages of “dry” optical fiber cable construction, lacking a grease or grease-like filler for water retention, and is therefore obvious to one of ordinary skill in the art as stated in the rejection of claim 10.

Carter further does not disclose the use of a central member. Carter does teach that strength members (item 25) are useful for improving the mechanical integrity of the optical fibers by protecting them from large mechanical strains.

Blew specifically teaches the placement of a strength member as a central member (Fig 2, item 12), with similar advantages as well as compactness of structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place a central member in Carter’s cable in lieu of his strength members in order to maintain mechanical integrity of the cable while reducing the diameter of the entire cable.

With respect to claims 17-20, Carter’s binder threads bind non-tight buffered optical fibers and consist of a needle thread and loop thread that are engaged in overlapped stitches.

In regards to claim 22, Carter's separation layer is a soft housing.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter, Ferguson and Blew and in view of Lochkovic (US 5,561,730).

Though Carter, Ferguson and Blew do not teach the use of silicone based coatings, Lochkovic discloses the use of silicone layers as a friction reduction technique in fiber optic cables. This minimizes the damage of the fibers due to wear from excessive relative motion that occurs during installation and over a lifetime of service.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the binding threads with a silicone finish such that the longevity of the fibers would be improved by adding such a friction reducing coating to the binder threads. In this way, wear between the fibers in the bundles and the surrounding loose buffer tube is mitigated.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter and Ferguson and in view of Navé (US 6,167,178).

Carter and Ferguson do not disclose the use of tight-buffered optical fiber bundles in conjunction with the "loose tube," or "loose buffered," optical fiber bundles.

Navé teaches such a practice in col.4, lines 11-24. Here, Navé specifically states that it is known in the art to have tight and loose optical fiber bundles in one cable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include tight-buffered optical fiber bundles in the Carter/Ferguson prior art

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combination fiber optic cable as a matter of design choice, since each construction style has its known advantages and disadvantages for specific applications.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter, Ferguson and Blew and in view of Navé (US 6,167,178).

Carter, Ferguson and Blew do not disclose the use of tight-buffered optical fiber bundles in conjunction with the “loose tube,” or “loose buffered,” optical fiber bundles.

Navé teaches such a practice in col.4, lines 11-24. Here, Navé specifically states that it is known in the art to have tight and loose optical fiber bundles in one cable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include tight-buffered optical fiber bundles in the Carter/Ferguson prior art combination fiber optic cable as a matter of design choice, since each construction style has its known advantages and disadvantages for specific applications.

Allowable Subject Matter

Claims 1-9, 23-28 and 31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the prior art teaches of various loose-buffered optical fiber cables. However, the prior art made of record, alone or in combination, fails to teach or reasonably suggest an optical fiber cable having a separation layer that is in contact with at least one fiber

bundle and is also in contact with at least a portion of a cable jacket in the combination as claimed in claim 1.

Claims 2-9 and 28 are allowed by virtue of their dependency.

Regarding claim 23, the prior art made of record, alone or in combination, fails to teach or reasonably suggest an armor layer adjacent to a fiber bundle in the combination as claimed in claim 23. The prior art teaches away from such structures, requiring at least one additional layer between fiber bundles and an armor layer (see Ferguson, made of record in the previous Office action, dated April 10th, 2003, Paper No.4). Fiber bundles are kept separate from an armor layer by at least one additional layer in order to protect the fibers. This is because the armor layers are usually made of interlocked or interwoven metal strips or tape that can damage fibers if they should come into contact during use.

Claims 24-27 and 31 are allowed by virtue of their dependency.

Conclusion

Applicant's amendment, filed July 24th, 2003, necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 8am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Thomas R. Artman
Patent Examiner
November 7, 2003



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER